

**GRAND CALUMET RIVER AREA OF CONCERN
HABITAT RESTORATION SUMMARY REPORT
MARCH 2014**



Photo provided by Paul Labus, The Nature Conservancy

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ACKNOWLEDGEMENT

This report is the product of discussions with land managers in the Grand Calumet River Area of Concern, in which their expertise and knowledge on the habitat sites were provided. The individuals and their associated organizations that contributed to this report are as follows:

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Samantha Erdelac, Save the Dunes Conservation

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INTRODUCTION

In 1978, The Great Lakes Water Quality Agreement was established between the United States and Canada. In 1987, the Water Quality Agreement identified 42 Areas of Concern (AOC), later adding another to bring the total to 43. The International Joint Commission identified areas as having one or more impairments to the 14 beneficial uses of the Great Lakes ecosystem as being an AOC. The Grand Calumet River Area of Concern includes the Grand Calumet River, Indiana Harbor and Ship Canal (IHSC), nearshore Lake Michigan, and associated habitat. The GCR was the only AOC impaired for all 14 beneficial uses as designated in the Water Quality Agreement, currently 12 impairments remain one of which being the Loss of Fish and Wildlife Habitat.

Located within the GCR AOC is a series of natural area remnants that continue to support fragments of the native dune and swale ecosystem. Despite their hostile surrounding and decades of neglect, the natural communities captured within these sites are surprisingly diverse. For example, Clark and Pine Nature Preserve has the highest concentration of rare, threatened and endangered species per acre throughout Indiana. Since 1979, The Nature Conservancy, Indiana Department of Natural Resources, Lake County Parks and Recreation Department, The Shirley Heinze Land Trust, and Save the Dunes Conservation Fund have protected approximately 900 acres of this highly threatened dune and swale ecosystem.

The greatest threat to these natural areas is ongoing habitat degradation caused by both the spread of invasive species and the disruption of natural fire regimes. Ecological restoration of the natural community structure and composition is required to abate these threats. Restoration activities focus primarily on removing large stands of non-native species and recreating appropriate savanna structure by reducing invasive shrubs and trees that have increased in the absence of wildfires. Currently the majority of these sites remain in a semi-degraded state, with land managers working to prevent them from slipping further away. The land management organizations working within the Grand Calumet River Area of Concern are committed to the long-term ecological management of these natural areas. However, the current challenge is restoring them to a state that allows for more manageable stewardship activities.

Though portions of the sites are degraded and the continued influx of invasive species remains a threat many natural areas within the AOC have recently been receiving restorative treatment through funding sources such as the Great Lakes Restoration Initiative and the Great Lakes Legacy Act (GLLA). These efforts are moving the AOC closer to the removal of the Loss of Fish and Wildlife Habitat beneficial use impairment (BUI), however much work remains to be done. This summary report is being provided to capture the current state of the restoration on all Riverine Wetlands and Dune and Swale Complexes listed in the Update to the RAP 2.5 document. This report will outline each site and provide information on the total acreage of the property, the total acres that are restored, and the total acres still needing treatment. Backup information to support the claim of restoration will be cited as available, but much information will be based on the current land manager's knowledge of the site. Additional monitoring needs will be addressed in the conclusive Summary of Restoration Work Needs on page 19.

RIVERINE WETLANDS

GRANT STREET

The majority of the Grant Street property is owned by US Steel (USS) while a small shrubby portion of the property (1.6 acres) just east of Bridge Street is owned by the City of Gary.

Contacts: Unknown

Total Acreage: 8 acres

Total Restored Acres: None

Funding Sources: No known funding to date has been utilized at this site for restoration purposes.

Available Data:

- Wetland delineations conducted by CARDNO JFNEW as part of the USS Consent Decree negotiations
- Dr. Rothrock, Taylor University, PBI and FQI transects just east of the bridge street where IDEM conducts fish monitoring, but not the entire 8 acres.
- Some data may be available from USS on invasive species control work conducted with beetles.

Total Acres in need of restoration: 8 acres

Additional Needs: Vegetative control on all 8 acres for typha, purple loosestrife, phragmites, and possibly buckthorn near Bridge Street. The site has 100% invasive cover.

This site is a low priority as it is far from other managed sites and does not pose as significant a threat as other areas listed in this report.

USS OXBOW

The property is considered a wooded wetland and is being managed by the Indiana Department of Natural Resources (IDNR) through a 10 year management agreement with USS.

Contacts: Emily Stork and Carl Wodrich

Total Acreage: 35 acres which include everything to the river and the toll road.

Total Restored Acres: At least 30 acres have been restored by USS under a management agreement with IDNR. This restoration effort included girdling cottonwood stands and cutting out weedy trees.

Funding Sources: The USS settlement with the Natural Resource Damages (NRD) trustees was used to conduct the 30 acre restoration.

Available Data:

- USS reports to the NRD Trustees on the restoration work conducted.

Total Acres in need of restoration: 5 acres which require intense treatment. These 5 acres are located outside the berm surrounding the 30 acres restored by USS.

Additional Needs: Phragmites and other exotic weedy species control on the 5 acres as well as continued maintenance and monitoring on all acres for exotics such as buckthorn and garlic mustard.

PINE STATION

OXBOW:

The property is managed by the IDNR.

Contacts: Emily Stork and Carl Wodrich

Total Acreage: 19 acres

Total Restored Acres: None

Funding Sources: No funding has been used specifically at the oxbow, but future funding may be available through the NRD trustees and the settlement with USS for not dredging the area.

Available Data:

- Dr. Rothrock, Taylor University, transects for vegetative cover.

Total Acres in need of restoration: 19 acres

Additional Needs: All 19 acres need exotic species control along follow-up monitoring and maintenance.

If dredging in the middle flooded portion of this property were able to be conducted under the GLLA in conjunction with the Gary River Reach the site could be restored to a very nice wetland and spawning ground for fish. Dredging of this area may prove to be cost prohibited though as EPA does not believe they will have much excess funding to use for riverine wetland establishment in the Gary Reach. Jim Smith estimates that it would cost approximately 4 million dollars to dredge this area out with the majority of the cost coming from property rental and access from Georgia Pacific.

NORTH BANK:

The property is managed by the IDNR.

Contacts: Emily Stork and Carl Wodrich

Total Acreage: 2 acres

Total Restored Acres: 0

Funding Sources: An IDNR Coastal Program grant was used on this site to spray invasive species. Future funding may be able to come from the NRD Trustees.

Available Data: None

Total Acres in need of restoration: 2 acres

Additional Needs: Invasive species control and follow-up maintenance and monitoring.

GARY REACH

The Gary Airport owns this property, but is not currently managing it as a riverine wetland habitat. At this time we cannot plan on restoring or managing these wetlands.

Contacts: Unknown

Total Acreage: 27 acres

Total Restored Acres: None

Funding Sources: None

Available Data: None

Total Acres in need of restoration: All 27 acres of which 25 acres need exotic species control and 2 acres need to be dredged.

Additional Needs: The site needs exotic species control and dredging. Post restoration the site would need follow-up maintenance and monitoring or at least a management agreement with the owner to allow for the spraying of invasive species as needed.

This site may not be able to be addressed under the GLLA as there may not be enough funding available beyond filling the Ralston street lagoon and capping the sediments. The sediments get more contaminated as the river moves east and therefore may require more funding to complete just the river dredging.

DUPONT REACH

The property is managed by The Nature Conservancy (TNC) and Shirley Heinze Land Trust, but will also be managed by the NRD trustees in the future.

Contacts: Paul Labus, Paul Quinlan, NRD trustees

Total Acreage: 78 acres

Total Restored Acres: All 78 acres have been restored, where 76 acres were restored through GLLA

Funding Sources: GLLA/NRD trustees funding, funding for the restorative establishment period may go through 2022 with GLLA.

Available Data:

- Data collected for the GLLA feasibility study and design.

Total Acres in need of restoration: None

Additional Needs: Maintenance beyond the establishment period for invasive species control and monitoring will be needed.

USS LEAD

The property is owned by USS Lead Refining Inc. of Redding California. This company is bankrupt, but is still listed as the owner with the Lake County Assessor's office. The property is not currently being managed as a potential habitat site, but is listed as a Superfund site with US EPA and should be managed by the US EPA for clean-up and restoration.

Contacts: Unknown

Total Acreage: 37.5 acres

Total Restored Acres: 0

Funding Sources: None known for habitat restoration. This site is a Superfund site and should have Superfund funding for restoration, however, it is unknown when Superfund will address this site as they are currently using funding in East Chicago to remediate the lead contaminated soil in the residential area.

Available Data:

- Available under Superfund

Total Acres in need of restoration: 25 acres which need invasive species control and 12.5 acres which need to be dredged.

Additional Needs: Superfund needs to address this site. It is expected that this site will need 12.5 acres of dredging with a sand cap as well as phragmites control on the whole acreage. An access agreement needs to be obtained to at least be able to control the invasive species so they do not become a seed source for other restored areas. Jim Smith, IDEM has plans for how this site could be restored to a very nice riverine wetland habitat for fish should it be addressed in the future.

SHELL/EAST CHICAGO

The majority of this property is owned by Buckeye Pipeline with additional parcels owned by The City of East Chicago, and NIPSCO.

Contacts: Unknown

Total Acreage: 15 acres

Total Restored Acres: None

Funding Sources: None to date, but possibly GLLA in the future.

Available Data:

- Plant and chemistry data have been collected along the river from 2 different sampling events conducted by IDEM.

Total Acres in need of restoration: 15 acres

Additional Needs: This site first needs a management access agreement to be obtained in order for work to be conducted. The entire site requires treatment of phragmites and a portion of the site requires some dredging.

ROXANA MARSH REACH

The property is managed by the IDNR

Contacts: Emily Stork, Carl Wodrich

Total Acreage: 38 acres which includes the wetlands up by Columbia Avenue

Total Restored Acres: 38 acres

Funding Sources: The initial restoration was funded by the GLLA and the NRD trustees. Follow-up maintenance for two years will be conducted through the Chi-Cal grant with a match from the NRD trustees and DuPont.

Available Data:

- Available through the GLLA feasibility and design plans.

Total Acres in need of restoration: None

Additional Needs: Continued maintenance for invasive weed control.

BP WETLANDS/LAKE MARY

The property is managed by The IDNR and is owned by BP.

Contacts: Emily Stork, Carl Wodrich

Total Acreage: 57 acres of which 50 acres are within conservation easements and 7 acres lie between those easements.

Total Restored Acres: 57 acres are in the process of being restored through the treatment of phragmites.

Funding Sources: Sustain our Great Lakes (SOGL) grant to IDNR

Available Data:

- Dr. Rothrock, Taylor University, has been conducting plant monitoring.

Total Acres in need of restoration: None

Additional Needs: Follow-up maintenance and control for phragmites. In order for phragmites to be controlled at this site the Exxon Mobil Wildlife Habitat Area needs to be properly managed for invasive weed control and buckthorn.

LAKE GEORGE

The property is managed and owned by The Hammond Port Authority.

Contacts: Hammond Port Authority Director, Milan A. Kruszynski

Total Acreage: 20 acres located at the golf course and north basin.

Total Restored Acres: 20 acres are in the process of restoration

Funding Sources: A SOGL grant for restoration of all 20 acres.

Available Data:

- Dr. Rothrock, Taylor University, has been conducting plant monitoring.

Total Acres in need of restoration: None

Additional Needs: Follow-up maintenance and control of phragmites.

DUNE AND SWALE HABITAT COMPLEXES

DUPONT/TOLESTON WOODS/GIBSON WOODS COMPLEX

DUPONT:

The property is managed by TNC.

Contacts: Paul Labus, Susan Mihalo

Total Acreage: The entire natural area is approximately 170 acres of which 130 acres are dune and swale.

Total Restored Acres: Approximately 90 acres of dune and swale have been restored. The remaining 40 acres have had initial treatment.

Funding Sources: GLRI, NRD Trustees, private DuPont funding, safe harbor funding, and the Chi-Cal grant for follow-up work on 130 acres.

Available Data:

- Dr. Rothrock, Taylor University, plant monitoring
- Illinois Butterfly Monitoring Network butterfly surveys
- Bird Studies
- Canada frog call surveys
- Heritage database macro work 2003-2006

Total Acres in need of restoration: There are 40 acres that TNC believes will require about 5 additional years of work before they will be considered restored.

Additional Needs: Continued maintenance and monitoring for invasive species.

BEEMSTERBOER:

The property is managed by TNC.

Contacts: Paul Labus, Susan Mihalo

Total Acreage: 40 acres (Paul to check compared to riverine wetland acres)

Total Restored Acres: 40 acres will be restored at the end of the GLRI work in July 2014.

Funding Sources: GLRI

Available Data:

- Dr. Rothrock, Taylor University, plant monitoring

Total Acres in need of restoration: None

Additional Needs: Native planting on the railroad bed and continued follow-up maintenance and monitoring for invasive species.

SEIDNER:

The property is managed by Shirley Heinze Land Trust.

Contacts: Kris Krouse, Paul Quinlan

Total Acreage: The whole site is 43 acres of which 22 acres are dune and swale, and the other is wetland shelf.

Total Restored Acres: The 22 acres of dune and swale will be restored by 2016 through the use of the Chi-Cal Grant funding.

Funding Sources: Chi-Cal grant, GLLA (railroad ballast and odds and ends removed that may affect the uplands), Indiana Heritage Trust stewardship funding and Donnelley funding.

Available Data:

- Dr. Tom Simon, ISU, has collected data at this site
- The Ressetar amphibian study potentially has data on this site

Total Acres in need of restoration: None

Additional Needs: Continued maintenance and monitoring for invasive species along with required controlled burns.

USS LEAD:

The property is owned by USS Lead Refining Inc. of Redding California. This company is bankrupt, but is still listed as the owner with the Lake County Assessor's office.

Contacts: Unknown

Total Acreage: 20 acres of remnant dune and swale. If the shrub area is included the size could be increased to 25 acres.

Total Restored Acres: None

Funding Sources: None known for restoration purposes. This property is a Superfund site and should have Superfund funding for restoration in the future. However, it is unknown when Superfund will address this site as they are currently using funding in East Chicago to remediate the soil in the residential areas impacted by lead.

Available Data:

- Only maps and walk through visual observations.

Total Acres in need of restoration: All 20/25 acres

Additional Needs: This site needs a clear restoration plan and someone to acquire the land and manage it after Superfund has appropriately addressed it. **Until Superfund addresses this site will not be able to be restored and managed to the level needed to meet BUI removal criteria.**

CLINE AVENUE NATURE PRESERVE:

The property is currently managed by Save the Dunes, but will be transferred to IDNR in 2014.

Contacts: Nicole Barker, Sam Erdelac, and Emily Stork

Total Acreage: The site is approximately 14 acres of which 9 acres are a dedicated nature preserve. The remaining acreage includes the pipeline easement and gravel area.

Total Restored Acres: 9 acres will be restored after the GLRI grant is complete in 2015.

Funding Sources: GLRI

Available Data:

- Dr. Rothrock, Taylor University, Plant monitoring
- Save the Dunes invasive species mapping
- Photo monitoring and plants of concern monitoring through Chicago botanic garden

Total Acres in need of restoration: 3 acres of the pipeline easement.

Additional Needs: Continued follow-up maintenance and monitoring for invasive species.

MARTIN OIL:

The property is managed by Save the Dunes

Contacts: Nicole Barker and Sam Erdelac

Total Acreage: 8.02 acres of which 5 are remnant dune and swale

Total Restored Acres: None currently, it will take multiple years of work before this site will be considered restored.

Funding Sources: GLRI and Martin Oil private funding for buckthorn removal

Available Data:

- Dr. Rothrock, Taylor University, Plant monitoring
- Save the Dunes invasive species mapping
- Photo monitoring and plants of concern monitoring through Chicago botanic garden

Total Acres in need of restoration: 8.02 acres still need some type of treatment before they will be considered as restored.

Additional Needs: Control and treatment of phragmites, cattails, reed canary grass, purple loosestrife, and buckthorn.

TOLESTON RIDGES:

The property is managed by Lake County Parks

Contacts: Kati Molchan, Craig Zandstra

Total Acreage: 40 acres of which 38.9 acres are a dedicated nature preserve

Total Restored Acres: Approximately 15 acres along the right of way and the first flat are in relatively good shape. The shrub layer has also been pretty well addressed on the uplands.

Funding Sources: A small amount of 2007 NRD funding was used for TNC staff to remove invasive shrubs.

Available Data:

- Illinois Butterfly Monitoring Network butterfly surveys
- Dr. Rothrock, Taylor University, 1 year unmanaged site transect

Total Acres in need of restoration: 25 acres

Additional Needs: The swales need to be adequately addressed for button bush, phragmites, purple loosestrife, cattails, and buckthorn. Canopy clearing needs to occur on the 25 acres as well for large invasive tree species.

GIBSON WOODS COMPLEX:

The property is managed by Lake County Parks

Contacts: Kati Molchan, Craig Zandstra

Total Acreage: The site is 122.705 acres of which 115 acres are a dedicated nature preserve

Total Restored Acres: Approximately 20 acres have been restored, but they may still need some herbaceous treatment.

Funding Sources: GLRI, a 2009 Coastal Grant matched with NRD trustee funding for 16 acres of shrub treatment, Fish and Wildlife Service funding for 3 acres of swale work, there may also have been some TNC and NRD funds spent at this site in the form of TNC employees conducting work. Some grant funding for cottonwood stand soil disturbance area may be available from Arcelor Mittal in 2014.

Available Data:

- Dr. Rothrock, Taylor University, plant inventories
- Illinois Butterfly Monitoring Network butterfly surveys

Total Acres in need of restoration: All acres still require some type of restoration work.

Additional Needs: This site needs an additional evaluation of the needs, but it is expected that it will require additional canopy clearing and continued maintenance and monitoring in the cottonwood clearing area.

IVANHOE COMPLEX

IVANHOE SOUTH:

The property is managed by the Shirley Heinze Land Trust

Contacts: Paul Quinlan and Kris Krouse

Total Acreage: The property is approximately 40 acres in total of which the core area is 35 acres and includes the street and alley vacations from the City of Gary. Shirley Heinze is currently negotiating with the railroad company for the area west to add an additional 12 acres. A land swap will take place for net gain of dune and swale habitat.

Total Restored Acres: The 35 core acres are in the process of being restored through the Army Corp. of Engineers GLFR project which will continue through 2016.

Funding Sources: GLFR, The Legacy foundation, USFWS, and NRDA

Available Data:

- Monitoring through the GLFR project
- Northwest Indiana Restoration Monitoring Inventory (NIRMI)

Total Acres in need of restoration: 5 outlining acres

Additional Needs: Continued follow-up maintenance on the 35 core acres including prescribed burns and backpack spraying of invasive species.

IVANHOE WEST:

The property is managed by The Nature Conservancy

Contacts: Paul Labus, Susan Mihalo

Total Acreage: 84 acres

Total Restored Acres: 60 acres will be restored by the end of July 2014 through a GLRI grant.

Funding Sources: GLRI

Available Data:

- Dr. Rothrock, Taylor University, plant inventories
- Illinois Butterfly Monitoring Network butterfly surveys

Total Acres in need of restoration: 24 acres of which 15 are wetlands that were treated about 15 years ago through mitigation dollars so those acres may fall to TNC for continued management.

Additional Needs: Canopy clearing and invasive species control in the wetlands.

IVANHOE EAST:

The property is managed by The Nature Conservancy

Contacts: Paul Labus, Susan Mihalo

Total Acreage: 45 acres of which TNC owns 30 acres north of 4th Avenue. The remaining 15 acres are owned by multiple parties.

Total Restored Acres: The 30 acres owned by TNC will be restored by the end of July 2014.

Funding Sources: a GLRI grant and a Chi-Cal grant for follow-up work through 2016

Available Data:

- Dr. Rothrock, Taylor University, plant inventories
- Illinois Butterfly Monitoring Network butterfly surveys
- NIRMI

Total Acres in need of restoration: None

Additional Needs: Continued maintenance and monitoring for invasive species.

CLARK & PINE/PINE STATION COMPLEX

CLARK & PINE:

The property is managed by IDNR

Contacts: Emily Stork, Carl Wodrich

Total Acreage: 41 acres

Total Restored Acres: It is difficult to determine for this site as this is the highest quality site yet it has a large buckthorn problem. It is estimated that the site needs buckthorn treatment on 30 acres.

Funding Sources: Only funding for seasonal staff through IDNR

Available Data:

- Long term monitoring and transects from Merlin Bowles and Steve Applebottom. This data can be obtained from Tom Post, IDNR.

Total Acres in need of restoration: 30 acres

Additional Needs: This site needs treatment for buckthorn, phragmites, cattails, and purple loosestrife along with continued maintenance and monitoring for invasive species. Most of this work will need to be done by hand.

RAILROAD PRAIRIE:

The property is owned by Norfolk Southern (NS) Railroad and Canadian National (CN) Railroad. CN plans to grant IDNR a conservation easement on their 10.6 acres within 3 years after they complete mitigation of those acres. No acres are currently being managed as habitat.

The mitigation will do weed management and woody and herbaceous treatment.

Contacts: IDNR for 10.6 acres in 3 years

Total Acreage: 30 acres of which 19.4 acres are owned by NS and 10.6 acres are owned by CN

Total Restored Acres: None

Funding Sources: CN mitigation dollars

Available Data:

- Mitigation monitoring for performance standards

Total Acres in need of restoration: 30 acres

Additional Needs: Buckthorn control

US STEEL PRAIRIE:

The property is owned by USS and CN. CN will be conducting mitigation on their 8.7 acres and in 3 years will be granting a conservation easement to IDNR. Those 8.7 acres are not the highest quality portion of the site though.

Contacts: IDNR for 8.7 acres in 3 years

Total Acreage: 33 acres

Total Restored Acres: None

Funding Sources: CN mitigation dollars

Available Data:

- Mitigation monitoring for performance standards

Total Acres in need of restoration: 33 acres

Additional Needs: This site needs a management agreement with USS and protection. The whole site needs treatment for buckthorn.

PINE STATION:

The property is managed by the IDNR.

Contacts: Emily Stork, Carl Wodrich

Total Acreage: 176 acres of the total 258 acre nature preserve are considered dune and swale habitat. It is possible that 6 acres will be added from the Eight East Area and 12.5 acres from Yard AB.

Total Restored Acres: 71 acres have had canopy clearing and shrub removal.

Funding Sources: GLRI, CN is treating 15 acres for woody and herbaceous species over a 5 year period starting in the spring of 2014, CWMA work for phragmites control through the NP Service GLRI funding on 63 acres and the ponds.

Emily Stork has a lot of information on past grants and funding that have been spent on this site the sources listed above are the major funding sources that have been utilized.

Available Data:

- Dr. Rothrock, Taylor University, plant inventories
- Mitigation monitoring for performance standards
- Frog call surveys

Total Acres in need of restoration: 105 acres

Additional Needs: Treatment for phragmites, purple loosestrife, cattails, buckthorn, Canada thistle, spotted knapweed, and reed canary grass.

GREY TRUST/GARY LAGOONS:

The Gary Lagoons and Greentree conservation easement are managed by IDNR and the 35 acres of the Grey Trust is owned by the Gary Airport. The airport may be responsible for restoring the property and transferring the ownership to the IDNR.

Contacts: Emily Stork, Carl Wodrich for the Gary Lagoons and Greentree conservation easement

Total Acreage: 55 acres which include the 13 acres of the Greentree mitigation site.

Total Restored Acres: The 7.2 acres of the Gary Lagoons

Funding Sources: Possible mitigation funds from Greentree and the Gary Airport

Available Data: None known

Total Acres in need of restoration: The 13 acres of Greentree and the 35 acres of the Grey Trust.

Additional Needs: Follow-up treatment on the Grey Trust mitigation and continued maintenance and monitoring at the Gary Lagoons with IDNR staff time.

SUMMARY OF RESTORATION WORK NEEDS

Each site listed in this report has additional needs specific to that location for restoration purposes, but when those needs are compared a similar theme is observed for the whole area and that is that all sites require some type of invasive species treatment and continued maintenance. The majority of the sites require treatment for one or more of the following invasive species: phragmites, cattails, and/or buckthorn. Treatment for these invasive species normally includes herbicide treatment and cutting/mowing and/or prescribed burns but not necessarily in that order. While it seems that there are numerous opportunities to apply for additional funding to conduct work current land managers are already stretched thin with management of the current grants and funding obligations they have. Funding is always wanted but at times may not be reasonable to apply for due to the lack of adequate staff to manage it. With the growing number of restoration projects over the past 5 years land managers are being faced with the daunting task of not only keeping the restoration moving but also of maintaining restored areas after initial treatment. All sites listed in this report are in need of or will need continued maintenance and monitoring for early detection of invasive species and treatment. Due to the many different property owners surrounding habitat sites it is very difficult to say that sites are definitively restored after initial treatment, as the influx of invasive species will always require some type of treatment to control.

The land managers have begun discussions on how they view their properties and what would be a reasonable end goal as far as Beneficial Use Impairment (BUI) removal is concerned. Post the results of the current GLRI habitat restoration grant new BUI removal criteria will most likely be developed based upon reasonable end goals for the land managers and the habitat sites, the current BUI removal criteria is attached in Appendix A for reference. Along with the discussion on the end goals for the properties the land managers are also going to be working on an updated list of expected costs for restoration and continued monitoring of these properties as the amounts listed in the Dune and Swale and Riverine Wetland tables in the Update to the RAP 2.5 document were merely best estimates based on expected needs. The ability to reach BUI removal for the Loss of Fish and Wildlife Habitat BUI will depend on the ability of the land managers to conduct continued maintenance and monitoring. Their ability to do this will greatly depend on staff capacity, funding, and time.

14. Loss of Fish and Wildlife Habitat**State of Indiana Removal Target Fish Habitat:**

- The habitat quality shall average a qualitative habitat evaluation index (QHEI)² score of 33 or better throughout the free-flowing stream stretches of the AOC; and
- If QHEI is assessed at 33 or better, then habitat quality should be maintained at or above that level.

State of Indiana Removal Target Wildlife Habitat:

- The habitat quality shall average a QHEI score of 33 or better using the Great lakes Drowned River Mouth Coastal Wetland criteria; and
- Plant Index of Biotic Integrity shall meet 35; and
- Floristic Quality Index³ without adventives⁴ shall meet 20 ; mean CC⁵ value = 6; and
- If QHEI is assessed at 33 or better, then habitat quality should be maintained at or above that level.

Actions for Fish Habitat:

- Track changes and measure QHEI scores.
- Track watershed survey results (Technical Support Documents, TMDLs, Water Quality Monitoring and Assessment Report, etc.)
- Conduct a habitat assessment of applicable segments in the AOC.

For Wildlife Habitat:

- Track changes and measure Great Lakes drowned river mouth coastal wetland habitat scores.
- Track percentage of riparian buffers along the Grand Calumet River and Indiana Harbor Ship Canal.
- Habitat is sufficient to support wildlife goals for the applicable segments within the AOC.
- Establish a monitoring program using plant indicators as measures of habitat quality to determine the appropriate restoration goals for the AOC;
- Develop restoration goals based on pIBI reference conditions for the AOC when implementing the appropriate restoration measures and benchmarks.

² The QHEI is a comprehensive assessment of physical characteristics of a stream or river.

³ Used to determine the level of degradation of an area based on the plant species that live there.

⁴ Not native to and not fully established in a new habitat or environment.

⁵ Coefficient of conservatism (based on a scale of 1-10).